Wanpipe for Asterisk Configuration

USER MANUAL

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Wanpipe for Asterisk Configuration

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Automatic Wanpipe configuration for Asterisk

Note: This option is only available with the 2.3.4 (beta) drivers.

The **wancfg** utility is now able to create wanpipe config files based on

/etc/zaptel.conf. Once zaptel.conf is created wanpipe config files will automatically be generated.

1. Create your zaptel.conf file based on the hardware in your machine. To see some examples of possible zaptel configurations, please check the appendix.

2. Create your wanpipe configuraton files based on zaptel.conf

   #>/usr/sbin/wancfg zaptel

   Wancfg will create wanpipe config files based on spans chans defined in zaptel and update your /etc/wanpipe/wanrouter.rc startup file.

3. To start wanpipe:

   #>wanrouter start

4. Start zaptel:

   #> ztcfg -vvv

5. Start asterisk run:

   #>asterisk -p

Warning:

Due to the complexity of zaptel.conf and the extensive configurations options available, wancfg uses the following rules when parsing zaptel config file:

1. Analog ports MUST be configured FIRST
2. T1/E1 Spans must be configured SECOND

Furthermore if analog cards are used, the analog FXO/FSX ports must be assembled as per the zaptel.conf order. With A200 cards it is possible to switch FXO/FXS order...but this would break the autoconfig!

Finally, after the autoconfig it is important to confirm that everything has been configured correctly and that commaond : **ztcfg -vvv** works properly.

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AFT A104 Wanpipe Configuration

Run wanpipe configuration utility:

/usr/sbin/wancfg

Hardware Setup (AFT):

Select Hardware: **Specify which AFT** card installed from hardware probe.

After probing the hardware, wancfg screen should show you:
(in this example, an A104 card)

Card Type-------> A104

Physical Medium-> T1

Sepecify Line Type: **T1 or E1**

Default is T1

Default configuration is complete: Select <BACK>

Protocol Setup:

Select Protocol: **TDM VOICE**

Configuration is complete: Select <BACK>

Interface Setup:

Skip First two options and leave them default.

Select: SPAN Number**:** 1 - Unlimited

The SPAN usually starts with 1

This option binds HW Port to a particular SPAN.

Select: Override Asterisk Echo Enable（AFT101/2/3/4/4d)

Default: NO

Setting this option to YES will DISABLE echo cancellation

for this particular span.

ie: ignore what is configured in zapata.conf,

then set this option to YES.

This is mainly used in switching applications where one SPAN needs echo cancellation and others do not.

Select: DCHAN PRI Timeslot: (AFT101/2/3/4/4d)

Hardware HDLC support for DCHAN PRI

Options:

0 : Disable Hardware HDLC on PRI timeslot.

24 : T1 Line DCHAN is usually on timeslot 24

Enable Hardware HDLC on PRI timeslot. Default 24

16 : E1 Line DHCAN is usually on timeslot 16

Enable Hardware HDLC on PRI timeslot. Default

Note: TDMV_DCHAN values are ALWAYS [0 | 24 | 16]

(Don't confuse this with the Asterisk configuration that uses values greater than 24/31 for the DCHAN specification).

Configuration is complete: Select <BACK> to Save and Exit

AFT A104D HW Echo Canceler Wanpipe TDM Configuration

Wanpipe TDM drivers have been developed to enable HW Echo Cancellation only on channels that have Active calls. Furthermore, the Wanpipe TDM driver waits for the Zaptel command to enable echo cancellation after the call has been established.

Therefore, **Echo Cancellation option MUST be enabled in /etc/asterisk/zapata.conf**.

echocancel=yes

echocancelwhenbridged=yes

Run wanpipe configuration utility: **/usr/sbin/wancfg**

Hardware Setup (AFT):

Select Hardware: **Specify which AFT** card is installed from hardware probe.

After hardware probe, wancfg screen should show you:

(in this example, an A104D card)

Card Type-------> A104

Physical Medium-> T1

Sepecify Line Type: **T1 or E1**

Default is T1

Default configuration is complete: Select <BACK>

Protocol Setup:

Select Protocol: **TDM VOICE**

Configuration is complete: Select <BACK>

Interface Setup:

Skip the first two options and leave them on the default selection.

Select: SPAN Number**:** 1 - Unlimited

The SPAN usually starts with 1

This option binds HW Port to a particular SPAN.

Select: Override Asterisk Echo Enable (AFT101/2/3/4/4d)

Default: NO

Setting this option to YES will DISABLE SOFTWARE echo cancellation for this particular span.

ie: ignore what is configured in zapata.conf,

then set this option to YES.

This is often used in switching applications where one SPAN needs echo cancellation and others do not.

Select: DCHAN PRI Timeslot: (AFT101/2/3/4/4d)

Hardware HDLC support for DCHAN PRI

Options:

0 : Disable Hardware HDLC on PRI timeslot.

24 : T1 Line DCHAN is usually on timeslot 24

Enable Hardware HDLC on PRI timeslot. Default 24

16 : E1 Line DHCAN is usually on timeslot 16

Enable Hardware HDLC on PRI timeslot. Default

Note: TDMV_DCHAN values are ALWAYS [0 | 24 | 16]
(Don't confuse this with the Asterisk configuration that uses values greater than 24/31 for the DCHAN specification).

Select: Hardware Echo Cancellation **(For A104D and A200 cards only)**

Options:
YES: Enables Hardware Echo Cancellation
NO : Disables Hardware Echo Cancellation

Configuration is now complete: Select <BACK> to Save and Exit

Hardware Echo Device: UDEV Configuration

From the wanpipe-beta3 release and forward, the HW Echo Cancelation interface is a device located in the /dev/ directory. There is one device per analog port on each card.
For example: on an A104D Card

/dev/wp1ec -> Port 1
/dev/wp2ec -> Port 2
etc.

System with 2.6 kernels and UDEV

If you are running on a Linux 2.6 kernel and a system with UDEV, these devices will be created automatically by UDEV, during wanrouter's bootup.

Systems with 2.4 kernels or 2.6 kernels without UDEV

If you are running on a Linux 2.4 kernel or 2.6 kernel and a system without UDEV, the ./Setup installation script should have created 32 /dev/wpXec devices for you.

In case you don't see any /dev/wpXec devices after 'wanrouter start' command, they will have to be manually created, using the following command:

#>mknod /dev/wanec c 242 0

etc. (for each analog port requiring configuration)

AFT A200-Analog with HW Echo Canceler Configuration

Run wanpipe configuration utility:

#>usr/sbin/wancfg

Note: If we do not specifically mention an option, ***please leave it on the default selection***.

Why is wanpipe1.conf needed along with zaptel.conf?

Hardware Setup (A200 Analog)

Select Hardware: Specify AFT 200 Analog card from hardware probe.

After hardware probe, wancfg screen should show you:

(in the example of an A200 card)

Card Type-------> A200-Analog

TDMV LAW -------> MuLaw

Specify Line Encoding: **MuLaw** or **ALaw**

Default is MuLaw

MuLaw is normally used in North America and Japan, ALaw is normally used outside North America and Japan. If you are in doubt, check with your Telco.

Default configuration is complete: Select <**BACK**>

Protocol Setup:

Select Protocol: **TDM VOICE**

Configuration is complete: Select <**BACK**>

Interface Setup:

Select: **SPAN Number**: 1 - Unlimited

The SPAN usually starts with 1

This option binds HW Port to a particular SPAN.

Select: **Hardware Echo Cancellation** (if supported by A200 card)

Options:

YES: Enables Hardware Echo Cancellation

NO : Disables Hardware Echo Cancellation

Note: Make sure that **echocancel=yes, echocancelwhenbridged=yes** option is set in zapata.conf

Configuration is complete: Select <**BACK**> to Save and Exit

Hardware Echo Device: UDEV Configuration

From the wanpipe-beta3 release and forward, the Hardware Echo Cancellation interface is a device located in the /dev/ directory. There is one device per analog card.

/dev/wp1ec -> Card 1

/dev/wp2ec -> Card 2

...

System with Linux 2.6 kernels and UDEV

If you are running on the Linux 2.6 kernel and a system with UDEV, these devices will be created automatically by UDEV during wanrouter start.

Systems with Linux 2.4 kernels or 2.6 kernels without UDEV

If you are running on a Linux 2.4 kernel or 2.6 kernel and a system without UDEV, the ./Setup installation script should have created 32 /dev/wpXec devices for you.

If you don't see any /dev/wpXec devices after the wanrouter start command, they must be created manually by using the following command:

#>mknod /dev/wp1ec c 242 1

#>mknod /dev/wp2ec c 242 2

etc. (for each analog card configured)

The Wanpipe TDM driver enables HW Echo Cancellation only on channels that have active calls: It waits for zaptel to enable echo cancellation after the call has been established. Therefore, Echo Cancellation option MUST be enabled in /etc/asterisk/zapata.conf.

echocancel=yes
echocancelwhenbridged=yes

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Wanpipe Config for Mixed Data and Voice over the same span/port

For example: Configuring an ISDN PRI connection with channels 1-12 for data (PPP) and channels 13-24 for voice (Asterisk).

Run wanpipe configuration utility:

/usr/sbin/wancfg

Hardware Setup (AFT):

Select Hardware: **Specify AFT** card from hardware probe.

After hardware probe, wancfg screen should show you:
(in this example, an A104 card)

Card Type-------> A104

Physical Medium-> T1

Specify Line Type: **T1 or E1**

Default is T1

Select Advanced Timeslot Groups Configuration

Set the number of Timeslot Groups to 2 or more.

Specify the number of channels for each timeslot groups.

Your screen should look like this:

Number of Timeslot Groups ----->2

Timeslot Group 1 configuration -> 1-12

Timeslot Group 2 configuration -> 13-24

Timeslot Groups configuration is complete: Select <BACK>

Default configuration is complete: Select <BACK>

Protocol and Interface Setup:

Configuration for each individual timeslot is the same as standard wanpipe configuration.

A104D Mixed HW Echo Cancelled Voice & Wan Data Configuration

No issues. From wanpipe-beta2-2.3.4.tgz release on, this problem has been solved

Data channels and Voice channels can be mixed and interchanged.

Configuring Zaptel and Asterisk Zap Channels

Wanpipe uses Zaptel to interface with Asterisk, so it is necessary to add parameters for zaptel (/etc/zaptel.conf) and in Asterisk for "Zap" channels.

T1/E1 Line <-----> Sangoma AFT Card <------> Zaptel <-------> Asterisk PBX

See:
Sample Zaptel Configuration Files
Sample Zapata Configuration Files

Why is wanpipe#.conf file needed along with Zaptel.conf

A common question received by Sangoma Tech Support is
"*Why does one need wanpipe1.conf file when zaptel.conf defines all the hardware and span information already? Is wanpipe1.conf simply a duplication of already existing information?*".

Answer: Wanpipe is a SUITE of device drivers that run over AFT series cards.

1. Wanpipe SUITE contains WAN/API and TDM Voice drivers.
2. Wanpipe drivers support simultaneous channelized operation

A group of channels (1 to 10) can run in TDM Voice mode (ZAPTEL) mode and another group of channels (11 to 24) can run WAN (Frame Relay) protocol all over a SINGLE T1/E1 line.

Therefore, TDM Voice mode is just one of the WANPIPE supported modes of operation. For this reason, wanpipe1.conf is need to configure a WANPIPE TDM Voice driver to load the correct card and attach the hardware T1/E1 port to correct ZAPTEL SPAN.

There is an added benefit to this configuration. User can specify exactly which T1/E1 PORT is bound to which ZAPTEL SPAN. On a single PORT/SPAN system this might not be a big deal, however on systems with 16+ PORTs/SPANs, it can prove difficult to figure out which SPAN belongs to which port if PORTs/SPANs are autoconfigured. With Wanpipe drivers

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